

surfaces gradually increases toward said image display device from the observer's visual axis,

a third surface provided so that said third surface faces the display surface of said image display device, and that one end of said third surface intersects an extension of said first surface, and the other end of said third surface intersects an extension of said second surface, and a medium which is surrounded by said first, second and third surfaces, and which has a refractive index  $(n)$  larger than 1  $(n > 1)$ ;

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cont.  
said second surface being a reflecting surface that reflects light rays in said ocular optical system, and said second surface having such a surface configuration that a surface configuration in a plane (YZ-plane) containing light rays turned back by said reflecting surface is different from a surface configuration in a XZ-plane perpendicular said YZ-plane.

12. An image display apparatus according to claim 11, further comprising a see-through optical element provided at a side of said ocular optical system which is remote from the observer's eyeball, said see-through optical element having a fourth surface facing said second surface of said ocular optical system, said see-through optical element further having a medium which has a refractive index  $(n)$  larger than 1  $(n > 1)$  and a fifth surface provided to face said fourth surface across said medium.

13. An image display apparatus according to claim 12, wherein said see-through optical element is cemented to said ocular optical system.

14. An image display apparatus according to claim 11, wherein said third surface of said ocular optical system has a concave surface directed toward said image display device.

15. An image display apparatus comprising:  
an image display device having a display surface for displaying an image; and  
an ocular optical system having  
a first surface provided at a position which faces an observer's eyeball,  
a second surface disposed to face said first surface such that a spacing between said first and second surfaces gradually increases toward said image display device from the observer's visual axis,  
a third surface provided so that said third surface faces the display surface of said image display device, and that one end of said third surface intersects an extension of said first surface, and the other end of said third surface intersects an extension of said second surface, and a medium which is surrounded by said first, second and third surfaces, and which has a refractive index (n) larger than 1 ( $n > 1$ );

said second surface being a reflecting surface that reflects light rays in said ocular optical system, wherein optical power of said second surface varies in accordance with an azimuth angle.

16. An image display apparatus according to claim 15, further comprising a see-through optical element provided at a side of said ocular optical system which is remote from the observer's eyeball, said see-through optical element having a fourth surface facing said second surface of said ocular optical system, said see-through optical element further having a medium which has a refractive index ( $n$ ) larger than 1 ( $n > 1$ ) and a fifth surface provided to face said fourth surface across said medium.

17. An image display apparatus according to claim 16, wherein said see-through optical element is cemented to said ocular optical system.

18. An image display apparatus according to claim 15, wherein said third surface of said ocular optical system has a concave surface directed toward said image display device.

19. An image display apparatus comprising:  
an image display device having a display surface  
for displaying an image; and  
an ocular optical system having  
a first surface provided at a position which faces  
an observer's eyeball,  
a second surface disposed to face said first  
surface such that a spacing between said first and second  
surfaces gradually increases toward said image display device  
from the observer's visual axis,  
a third surface provided so that said third surface  
faces the display surface of said image display device, and  
that one end of said third surface intersects an extension of  
said first surface, and the other end of said third surface  
intersects an extension of said second surface, and a medium  
which is surrounded by said first, second and third surfaces,  
and which has a refractive index ( $n$ ) larger than 1 ( $n > 1$ );  
said second surface being a reflecting surface that  
reflects light rays in said ocular optical system, wherein  
said second surface is an anamorphic surface.

20. An image display apparatus according to claim  
19, further comprising a see-through optical element provided  
at a side of said ocular optical system which is remote from  
the observer's eyeball, said see-through optical element  
having a fourth surface facing said second surface of said

ocular optical system, said see-through optical element further having a medium which has a refractive index (n) larger than 1 ( $n > 1$ ) and a fifth surface provided to face said fourth surface across said medium.

21. An image display apparatus according to claim 20, wherein said see-through optical element is cemented to said ocular optical system.

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22. An image display apparatus according to claim 19, wherein said third surface of said ocular optical system has a concave surface directed toward said image display device.

23. An image display apparatus comprising:  
a face-mounted unit body having an image display device disposed in front of an observer's face with a display surface thereof directed toward an observer's visual axis so that a line normal to the display surface intersects an observer's visual axis;  
an ocular optical system having  
a first surface provided at a position which faces the observer's eyeball,  
a second surface disposed to face said first surface such that a spacing between said first and second

surfaces gradually increases toward said image display device from the observer's visual axis,

a third surface provided so that said third surface faces the display surface of said image display device, and that one end of said third surface intersects an extension of said first surface, and the other end of said third surface intersects an extension of said second surface, and a medium which is surrounded by said first, second and third surfaces, and which has a refractive index ( $n$ ) larger than 1 ( $n > 1$ ); and

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Cont.  
a support member for supporting said face-mounted unit body on an observer's head so that said face-mounted unit body is held fit to the observer's face,

said second surface being a reflecting surface that reflects light rays in said ocular optical system, and said second surface having such a surface configuration that a surface configuration in a plane (YZ-plane) containing light rays turned back by said reflecting surface is different from a surface configuration in a XZ-plane perpendicular said YZ-plane.

24. An image display apparatus according to claim 23, wherein said face-mounted unit body includes a see-through optical element provided at a side of said ocular optical system which is remote from the observer's eyeball, said see-through optical element having a fourth surface facing said second surface of said ocular optical system,

said see-through optical element further having a medium which has a refractive index ( $n$ ) larger than 1 ( $n > 1$ ) and a fifth surface provided to face said fourth surface across said medium.

25. An image display apparatus according to claim 24, wherein said see-through optical element is cemented to said ocular optical system.

26. An image display apparatus according to claim 23, wherein said third surface of said ocular optical system has a concave surface directed toward said image display device.

27. An image display apparatus comprising:

a face-mounted unit body having an image display device disposed in front of an observer's face with a display surface thereof directed toward an observer's visual axis so that a line normal to the display surface intersects an observer's visual axis;

an ocular optical system having

a first surface provided at a position which faces the observer's eyeball,

a second surface disposed to face said first surface such that a spacing between said first and second

surfaces gradually increases toward said image display device from the observer's visual axis,

a third surface provided so that said third surface faces the display surface of said image display device, and that one end of said third surface intersects an extension of said first surface, and the other end of said third surface intersects an extension of said second surface, and a medium which is surrounded by said first, second and third surfaces, and which has a refractive index ( $n$ ) larger than 1 ( $n > 1$ ); and

a support member for supporting said face-mounted unit body on an observer's head so that said face-mounted unit body is held fit to the observer's face,

said second surface being a reflecting surface that reflects light rays in said ocular optical system, wherein optical power of said second surface varies in accordance with an azimuth angle.

28. An image display apparatus according to claim 27, wherein said face-mounted unit body includes a see-through optical element provided at a side of said ocular optical system which is remote from the observer's eyeball, said see-through optical element having a fourth surface facing said second surface of said ocular optical system, said see-through optical element further having a medium which has a refractive index ( $n$ ) larger than 1 ( $n > 1$ ) and a



fifth surface provided to face said fourth surface across said medium.

29. An image display apparatus according to claim 28, wherein said see-through optical element is cemented to said ocular optical system.

30. An image display apparatus according to claim 27, wherein said third surface of said ocular optical system has a concave surface directed toward said image display device.

31. An image display apparatus comprising:

a face-mounted unit body having an image display device disposed in front of an observer's face with a display surface thereof directed toward an observer's visual axis so that a line normal to the display surface intersects an observer's visual axis;

an ocular optical system having

a first surface provided at a position which faces the observer's eyeball,

a second surface disposed to face said first surface such that a spacing between said first and second surfaces gradually increases toward said image display device from the observer's visual axis,

a third surface provided so that said third surface faces the display surface of said image display device, and that one end of said third surface intersects an extension of said first surface, and the other end of said third surface intersects an extension of said second surface, and a medium which is surrounded by said first, second and third surfaces, and which has a refractive index (n) larger than 1 ( $n > 1$ ); and

a support member for supporting said face-mounted unit body on an observer's head so that said face-mounted unit body is held fit to the observer's face,

said second surface being a reflecting surface that reflects light rays in said ocular optical system, wherein said second surface is an anamorphic surface.

32. An image display apparatus according to claim 31, wherein said face-mounted unit body includes a see-through optical element provided at a side of said ocular optical system which is remote from the observer's eyeball, said see-through optical element having a fourth surface facing said second surface of said ocular optical system, said see-through optical element further having a medium which has a refractive index (n) larger than 1 ( $n > 1$ ) and a fifth surface provided to face said fourth surface across said medium.